

## **REMARKS**

This is responsive to the Office Action that was mailed November 2, 2006 (hereinafter "Office Action").

### **Claim Amendments**

Claims 1, 11, 19, 27, 36, 39, and 43 have been amended to include a description of the pulse generated by the pulse generator. Support for this amendment can be found in the specification as filed – specifically, the last sentence of paragraph 0027. These amendments do not introduce any new matter into the application.

### **Claim Rejections Under 35 U.S.C. §103(a)**

Claims 1, 3-15, 18-23, 26, 27, 29-36, 39, 43, and 46-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over Pittman et al. (U.S. 5,998,968)("Pittman") in view of Uribe et al. (US 6,635,369)("Uribe") and further in view of Iino et al. (U.S. Patent No. 6,313,637)("Iino").

Applicant's previous arguments in response to this rejection are hereby incorporated by reference.

With respect to amended claim 1, and the claims which depend from amended claim 1, amended claim 1 discloses a fuel cell maintenance device that comprises a switch, a pulse generator capable of pulsing a cathode of at least one cell of a fuel cell stack through the switch when the switch is closed, a relay capable of shorting the cell of a fuel cell stack, and a dielectrically isolated driver capable of driving the relay. Further, amended claim 1 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and Iino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor Iino specify that the pulse generator generates a digital pulse as disclosed in amended claim 1. As a result, amended claim 1, and the claims which depend from amended claim 1, is not unpatentable

over Pittman in view of Uribe and Iino. Reconsideration and withdrawal of the rejection of claim 1 under §103(a) is respectfully requested.

With respect to amended claim 11, and the claims which depend from amended claim 11, amended claim 11 discloses a fuel cell maintenance device that comprises at least one relay capable of shorting at least one cell of a fuel cell stack; a dielectrically isolated driver capable of driving the relay; a pulse generator capable of pulsing a cathode of the cell through the relay when the dielectrically isolated driver closes the relay to short the cell wherein at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of receiving power returned from the fuel cell stack; and a voltage regulator through which at least one of the relay, the dielectrically isolated driver and the pulse generator is capable of received power returned from the fuel cell stack. Further, amended claim 11 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and Iino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor Iino specify that the pulse generator generates a digital pulse as disclosed in amended claim 11. As a result, amended claim 11, and the claims which depend from amended claim 11, is not unpatentable over Pittman in view of Uribe and Iino. Reconsideration and withdrawal of the rejection of claim 11 under §103(a) is respectfully requested.

With respect to amended claim 19, and the claims which depend from amended claim 19, amended claim 19 discloses a fuel cell maintenance device for a fuel cell stack including at least one fuel cell comprising at least one relay electrically connected in parallel across the cell; a dielectrically isolated driver operably associated with the relay to drive the relay; a pulse generator electrically connected to the dielectrically isolated driver to pulse a cathode of the cell through the relay when the dielectrically isolated driver closes the relay; and a power return from the fuel cell stack to at least one of the pulse generator, the relay and dielectrically isolated driver, wherein the power return includes a

voltage regulator. Further, amended claim 19 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and Iino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor Iino specify that the pulse generator generates a digital pulse as disclosed in amended claim 19. As a result, amended claim 19, and the claims which depend from amended claim 19, is not unpatentable over Pittman in view of Uribe and Iino. Reconsideration and withdrawal of the rejection of claim 19 under §103(a) is respectfully requested.

With respect to amended claim 27, and the claims which depend from amended claim 27, amended claim 27 discloses an apparatus that comprises a fuel stack, including a plurality of cells; a switch bank, including a plurality of switches, each switch electrically connected in parallel across at least one of the cells; a pulse generator capable of pulsing the cathodes of the cells when the respective switch is closed; a control circuit electrically connected in series between the pulse generator and the switch bank to sequentially open and close the switches; a relay capable of shorting at least one cell of a fuel cell stack; and a dielectrically isolated driver capable of driving the relay. Further, amended claim 27 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and Iino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor Iino specify that the pulse generator generates a digital pulse as disclosed in amended claim 27. As a result, amended claim 27, and the claims which depend from amended claim 27, is not unpatentable over Pittman in view of Uribe and Iino. Reconsideration and withdrawal of the rejection of claim 27 under §103(a) is respectfully requested.

With respect to amended claim 36 and amended claim 39, these claims are believed to be in condition for allowance by virtue of their amendments. Claims 37-38 have been canceled without prejudice. Amended claims 36 and 39 are not unpatentable over Pittman in view of Uribe and in further view of lino. Reconsideration and withdrawal of the rejections of amended claims 36 and 39 under §103(a) is respectfully requested. Further, amended claim 36 and amended claim 39 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and lino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor lino specify that the pulse generator generates a digital pulse as disclosed in amended claims 36 and 39. As a result, amended claims 36 and 39, and the claims which depend from amended claims 36 and 39, is not unpatentable over Pittman in view of Uribe and lino. Reconsideration and withdrawal of the rejection of claims 36 and 39 under §103(a) is respectfully requested.

With respect to amended claim 43, and the claims which depend from amended claim 43, amended claim 43 discloses a fuel cell maintenance device that comprises means for imposing a low impedance across at least one cell of a fuel cell stack; wherein the low impedance imposing means includes a switch that imposes the low impedance when closed and receiving a pulse from the pulse generator; wherein the switch comprises a relay capable of shorting the cells of a fuel cell stack and a dielectrically isolated driver capable of driving the relay; and a pulse generator capable of pulsing a cathode of the at least one cell of a fuel cell stack through the low impedance imposing means. Further, amended claim 43 specifies that the pulse generator generates a digital pulse.

Applicant maintains that all of these features are not taught or suggested by the disclosures of Pittman, Uribe, and lino when considered individually or in combination with one another. In addition to those arguments previously presented, neither Pittman nor Uribe nor lino specify that the pulse generator generates a digital pulse as disclosed in amended claim 43. As a result, amended claim 43, and the claims which depend from amended claim 43, is not

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unpatentable over Pittman in view of Uribe and Iino. Reconsideration and withdrawal of the rejection of claim 43 under §103(a) is respectfully requested.

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All of the stated grounds of objection and rejection are believed to have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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